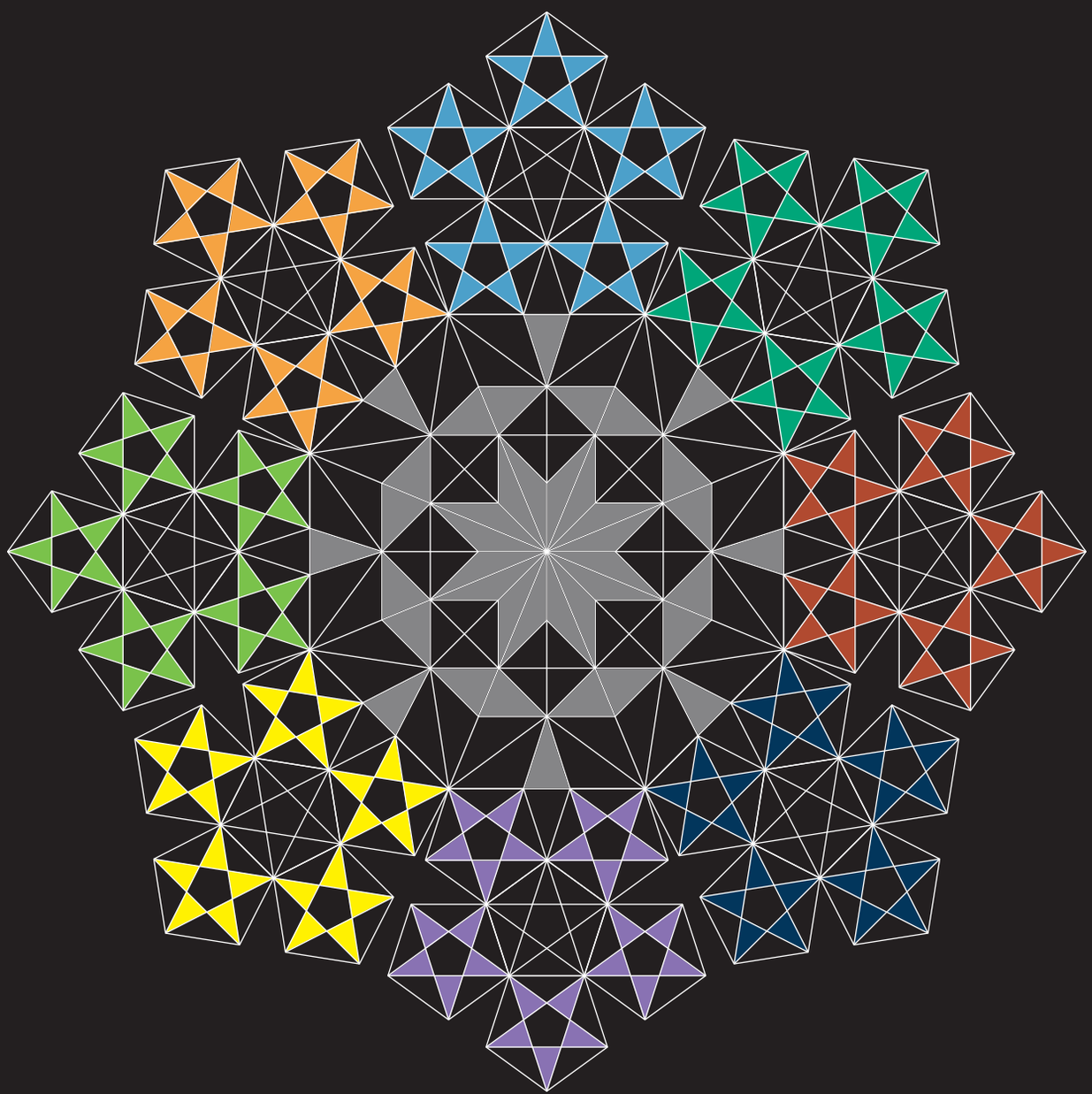

2024-2025

Degree Programs in Systems and Information Engineering, Graduate School of Science and Technology,

University of Tsukuba

University of Tsukuba

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For more information, please visit our website
https://www.sie.tsukuba.ac.jp/eng/

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Cover design

The pentagrams represent five degrees awarded by the Degree Programs in Systems and Information Engineering, and they are set within an eight-color octagon symbolizing our eight degree programs. This cover design shows how these degrees and programs harmonize to make up the Degree Programs in Systems and Information Engineering.

Message from the Dean

ENDO Yasunori

The Degree Programs in Systems and Information Engineering are known for their distinctive style of education and research in a cutting-edge, multidisciplinary field that integrates systems, information, and society. We take pride in our wealth of achievements, and believe that our research and development outcomes in the field deserve attention, since they serve as the bedrock of social infrastructure and support our daily lives and economic activities.

The 5th Science and Technology Basic Plan, which has been implemented over five years since 2016, recognizes the arrival of an era of revolutionary change, when technological evolution in areas including information and communications technology (ICT) drastically changes the social and economic structure. The plan also advocates the realization of a super-smart society (Society 5.0), where fusion of cyberspace and physical space may bring greater prosperity. Moreover, it aims to promote industry-academia collaboration in order to facilitate the cultivation and recruitment of engineers who will be responsible for future innovation in science and technology. This is precisely the vision we share. Our mission is to contribute to the promotion of art and science, as well as develop human resources with global perspectives, flexible thinking, originality, and creativity. Such personnel are indispensable to solving real-world problems, which are often complicated and challenging, and development of such talent eventually produces potential leaders capable of displaying international initiative.

Today's social problems, regional challenges, and economic activities are highly sophisticated. Accordingly, our degree programs are expected to play an ever-expanding role in solving such problems. To enhance graduate education, we have started employing proposal-based programs for education and research including recurrent education of mid-career students. Furthermore, we will always remain open to attracting highly motivated domestic and foreign students, and are committed to training them as prospective global leaders.

Educational Aims of Our Degree Programs

The Degree Programs in Systems and Information Engineering aim to foster researchers, educators, and highly skilled professionals equipped with global perspectives, diverse and flexible thinking, originality, and creativity to solve complex and difficult problems in the real world, and capable of taking leadership in a multidisciplinary field that integrates systems, information, and society.

To attain this goal, our degree programs are composed as follows:

- Master's and Doctoral Programs in Policy and Planning Sciences
- Master's Program in Service Engineering
- Master's and Doctoral Programs in Risk and Resilience Engineering
- Master's and Doctoral Programs in Computer Science
- Master's and Doctoral Programs in Intelligent and Mechanical Interaction Systems
- Master's and Doctoral Programs in Engineering Mechanics and Energy
- Doctoral Program in Empowerment Informatics (5-year doctoral program)
- Master's and Doctoral Programs in Life Science Innovation: Bioinformatics

University of Tsukuba redefines the concept of "degree program"

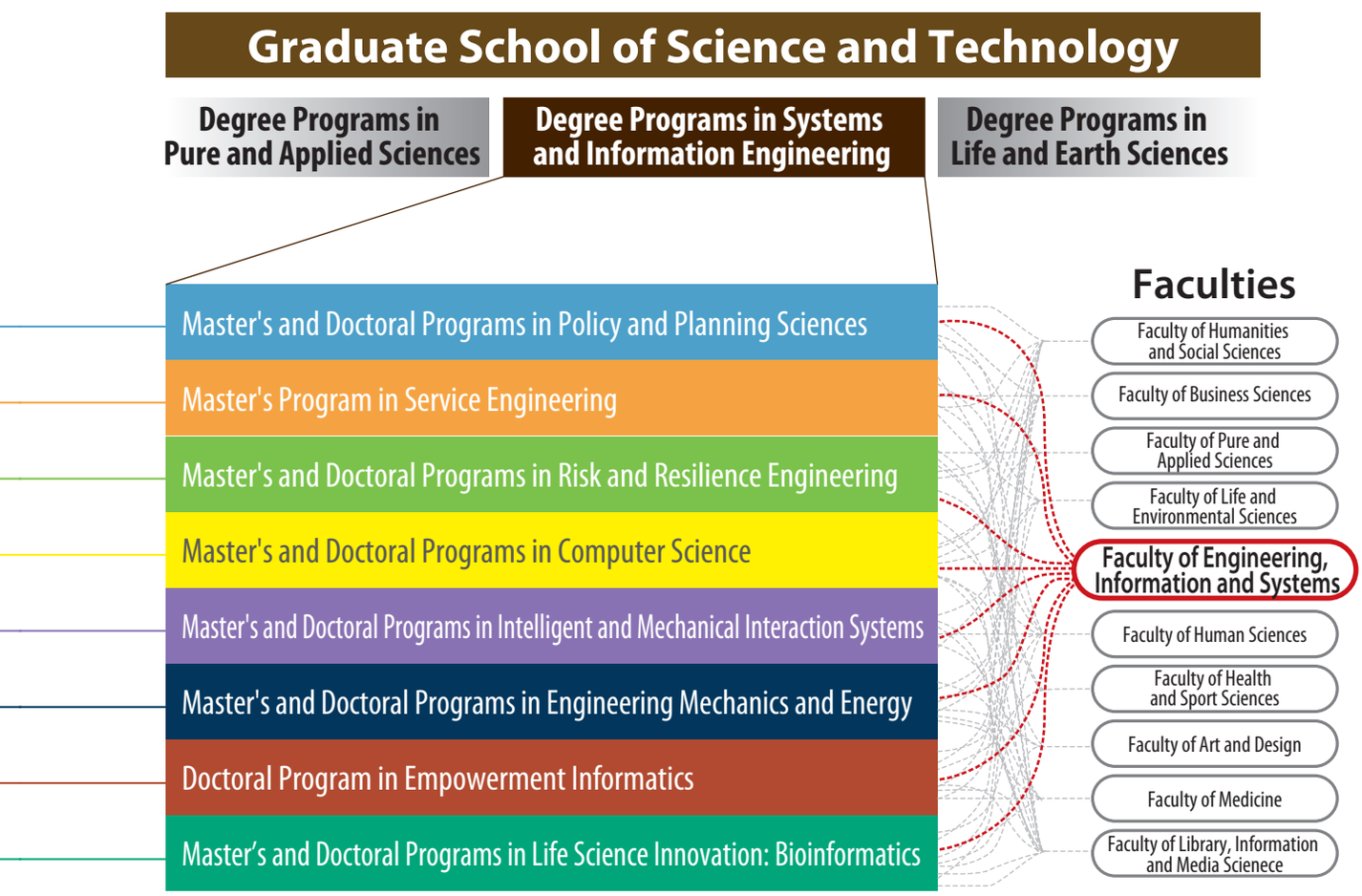
A degree program refers to an educational program systematically organized to achieve specified learning outcomes that correspond with a human resource development vision and the relevant level of degree, such as master's and doctoral degrees.

Feature 1: "Visualization" of Learning

All students select one of the degree programs for their studies. Students then study based on their learning plan and career plan with the aim of acquiring a degree, while confirming with their supervisors the abilities they have acquired through the learning process.

Structure of Our Degree Programs

The image below shows the Degree Programs in Systems and Information Engineering within the wider system of education and faculties at the University of Tsukuba.
The independence of the university's educational and faculty units enables a faculty member to deliver lectures and supervise research across the multiple degree programs.
Each degree program can thus be more flexible and provide practical learning with considerable expertise.



Feature 2: Extensive interdisciplinary learning beyond traditional organizational barriers

In the degree program system, the framework of traditional programs has been eliminated, and faculty members with experience in a wide range of fields collaborate as they engage in degree program education. All students now have access to research guidance from faculty members with experience in other fields. This was not possible in the past, and enables students to conduct research from a much wider perspective.

Six Features of Our Degree Programs

1. Realization of Society 5.0

Society 5.0 refers to a human-centered society that balances economic advancement with the resolution of social problems through a system that integrates cyberspace and physical space at an advanced level, and was proposed as a future society that Japan should aspire to. Our degree programs mainly aim to realize Society 5.0, which adopts innovative technologies such as the Internet of Things (IoT), artificial intelligence (AI), robotics, and big data into every industry and society as a whole with a focus on developing human resources who can contribute to and activate Society 5.0.

2. Identification of competences to be acquired in each degree program

The university further clarifies generic and specific knowledge and abilities (i.e.,competences) to be acquired by students by the time of degree conferment, and organizes systematic curricula aimed at competence acquisition.

Generic Competences Ⓜ Master's program Ⓓ Doctoral program

Generic Competences	Specific knowledge and abilities
Ability to use knowledge /create knowledge	Ability to put advanced knowledge to use in society Ⓜ Ability to create new knowledge to be able to contribute to future society Ⓓ
Communication ability	Ability to express expert knowledge accurately and clearly Ⓜ Ability to express the nature of academic findings positively and clearly Ⓓ
Management ability	Ability to appropriately address challenges from every angle Ⓜ Ability to plan and implement measures to identify and solve challenges from a higher perspective Ⓓ
Group skill /Leadership ability	Ability to cooperate and actively contribute to the achievement of goals as a team Ⓜ Ability to accomplish objectives under one's leadership Ⓓ
International character	Awareness to contribute to the international society Ⓜ High-level of awareness and motivation to be internationally active and contribute to international society Ⓓ

Specific Competences Ⓜ Master's program Ⓓ Doctoral program

Specific Competences	Specific knowledge and abilities
Research ability	Basic knowledge and ability to set reseach tasks and carry out a research plan in the areas of systems and infomation engineering Ⓜ Ability to set leading-edge and advanced reseach tasks based on up-to-date specialized knowledge and carry out a research plan independently in the areas of systems and infomation engineering Ⓓ
Specialized knowledge	Advanced specialized knowledge and command of the areas of systems and information engineering Ⓜ Leading-edge and advanced specialized knowledge and command of the areas of systems and information engineering Ⓓ
Ethical view	Ethical view and ethical knowledge appropriate for human resources or highly-skilled professionals equipped with basic research skills in the areas of engineering Ⓜ Ethical view and ethical knowledge appropriate for researchers or highly-skilled professionals in the areas of engineering and deep ethical knowledge about the specific area of expertise Ⓓ

*Specific competences shall be more specified in each degree program.

3. Periodic assessment and evaluation of achievement levels via Achievement Level Assessment System

Our degree programs employ a Achievement Level Assessment System (ALAS).
The ALAS regularly confirms students' achievements and promotes planned study and research to ensure that students can acquire generic and specific competences up until degree completion.
This system actively includes out-of-classroom activities such as academic conference presentations, thesis research, teaching assistant experience, and voluntary activities.
Students can clarify their goals, together with knowledge and abilities to be acquired, by checking how they have learned and how much they have achieved. This also provides opportunities for self-reflection.

Assessment standards and periods, as well as evaluation of achievement levels, may vary depending on degree program.

4. Degree program common courses

In order to provide diverse knowledge in the Systems and Information Engineering field, many degree program courses are specified as common courses which can be studied by all degree program students. These exclude specialized courses, such as compulsory subjects for each degree program.
Common courses are divided into two categories: basic subjects and advanced subjects. Basic subjects foster fundamental knowledge and abilities in setting research tasks and executing research plans. Advanced subjects foster specialized knowledge and management ability together with special seminar courses and special research courses for each degree program.

Based on the curriculum outlined above, graduate students can start by learning the basics in their major field of research and then expand as they complete the curriculum of each degree program.

● Degree Program Common Courses
Subjects consisting of courses which can be studied by all students in the Degree Programs in Systems and Information Engineering.

● Degree Program Specialized Courses
Subjects consisting of courses which can only be studied by students of each degree program.

5. Collaboration with research institutes and companies

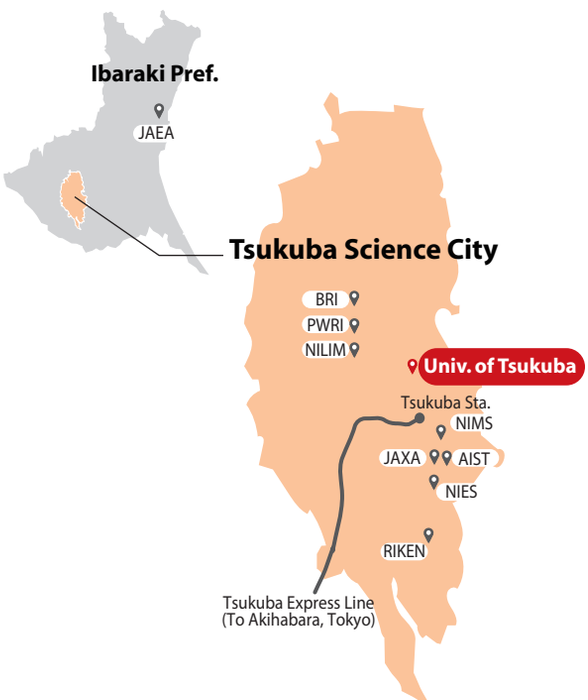
Cooperative Graduate School Program

Since it is located in the center of Tsukuba Science City, the University of Tsukuba offers a wealth of opportunities to engage in research collaborations with other institutes in the City.

Our Degree Programs adopt a "Cooperative Graduate School" system aligned with the following research institutes.

We invite researchers from the institutes to serve as Professors (Cooperative Graduate School Program) or Associate Professors (Cooperative Graduate School Program),

which gives students the luxury of carrying out research hand-in-hand with such institutes toward completion of their degrees.



Cooperative research institutes with our Degree Programs

- National Institute of Advanced Industrial Science and Technology (AIST)
- Japan Atomic Energy Agency（JAEA）
- Public Works Research Institute (PWRI)
- Japan Aerospace eXploration Agency (JAXA)
- Building Research Institute (BRI)
- National Institute for Environmental Studies (NIES)
- Institute of Physical and Chemical Research（RIKEN）
- National Institute for Materials Science（NIMS）
- National Institute for Land and Infrastructure Management (NILIM)

Collaborative Graduate School Program (Master's and Doctoral Programs in Risk and Resilience Engineering)

Master's and Doctoral Programs in Risk and Resilience Engineering adopt a "Collaborative Graduate School" system.

Experts from 13 participating institutions of the Resilience Research and Education Promotion Consortium join full-time professors of the university to deliver this program, which they run collaboratively.

Participating institutions of Resilience Research and Education Promotion Consortium

- SECOM Co., LTD.
- Dai Nippon Printing Co., Ltd. (DNP)
- NEC Corporation
- Tokyu Property Management Co.,Ltd.
- NTT Space Environment and Energy Laboratories
- DRI Japan
- Central Research Institute of Electric Power Industry (CRIEPI)
- Japan Automobile Research Institute (JARI)
- Electronic Navigation Research Institute (ENRI)
- National Institute of Advanced Industrial Science and Technology (AIST)
- National Research Institute for Earth Science and Disaster Resilience (NIED)
- National Institute of Occupational Safety and Health, Japan (JNIOSH)
- National Science and Technology Center for Disaster Reduction (Taiwan)
- University of Tsukuba

Resilience Research and Education Promotion Consortium

CRIEPI Central Research Institute of Electric Power Industry
NIED 防災科研
ENRI 国立研究開発法人 海上・港湾・航空技術研究所 電子航法研究所 Electronic Navigation Research Institute
DNP 大日本印刷
DRI Japan
JARI
Risk and Resilience Core Studies
Urban Disaster Prevention and Social Resilience
Information Systems and Security
Environmental and Energy Systems
信頼される安心を、社会へ。 SECOM
NCDR
NEC
JNIOSH 労働安全衛生総合研究所 安衛研
AIST
東急プロパティマネジメント
筑波大学 University of Tsukuba
NTT

6. Promotion of recurrent education

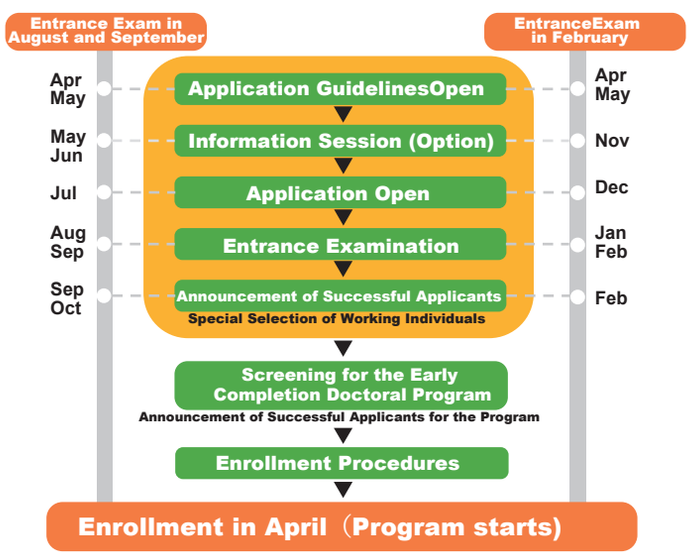
To promote lifelong learning, our degree programs offer a wide range of support for working individuals who wish to earn a degree.

● Early Completion Doctoral Program for Working People D

This program is intended for people who are already working and have acquired some relevant research achievements and skills through their professional careers. Doctoral Programs ordinarily take three years as a standard term of study, but this program enables students to complete a doctoral degree program in as little as one year. It has been specifically designed by the university to help working individuals earn a doctoral degree.
Students participating in this program receive guidance from supervisors on writing their theses, which are based on research achievements and experience gained while working.

◆ Process Before the Enrollment

After passing the entrance examination (Special Selection Process for Working Individuals), you will become eligible to apply for the Early Completion Program.



IMAI Yoshihito alumnus

Doctoral Program in Intelligent Interaction Technologies (completed in 2020)

Only after becoming a working professional, I realized that my expertise is one of the important evaluation indicators and how I will survive in the future is questioned.
In addition to doing my job at the company smoothly, I chose the path of a PhD student because I thought that I needed an expertise that could create new value to the society. The life as a working PhD student was tough, with work on weekdays and research on holidays, but the days full of intellectual curiosity were very exciting. Now that I am a PhD, I am looking forward to what I can produce in my future career.

Q. Can the quality of the degree granted by this program be assured?

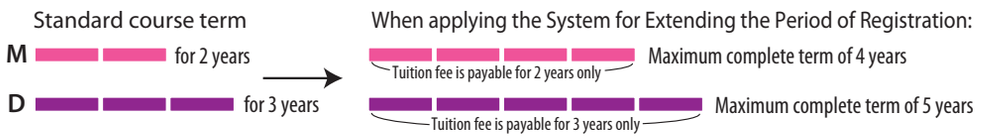
This program adopts a “Achievement Level Assessment System (ALAS)” so that students are able to reliably check their level of achievement. The quality of the degree granted by the program is further guaranteed by external evaluation of the program itself.

Q. What if I don’t earn a degree within one year?

If students cannot complete the program in one year because of work or other commitments, they are allowed to extend the period of registration. Furthermore, they may take a leave of absence if they have to suspend the program temporarily.

● System for Extending the Period of Registration M D

In order to support students who wish to earn a degree while working, our degree programs allow students to extend their period of registration. The total tuition fee is the same as when students complete their degrees within the standard course term.



● Special Selection Process for Working Individuals M D

Entrance examinations (Special Selection Process for Working Individuals) are available for individuals who have been working for more than one year, where such persons are able to utilize experience gained in their careers. Examinees are able to present experience and achievements obtained through their careers in such examinations.

Our degree programs actively welcome working individuals, and starting from entrance examinations for the 2020 academic year we have increased the number of students to be admitted through the Special Selection Process for Working Individuals.

Message from a corporate president who encourages his employees to develop their capabilities

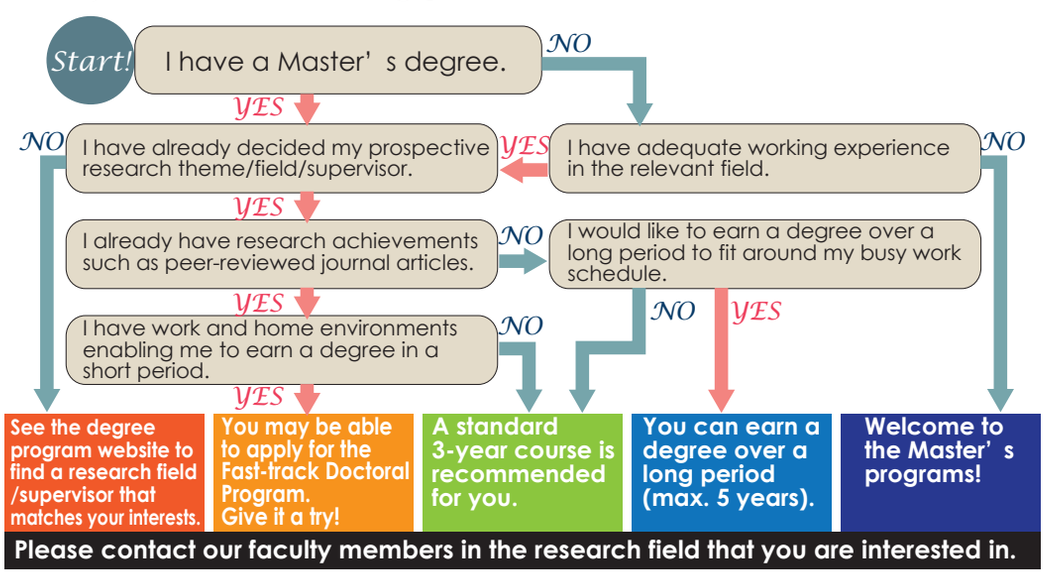
SEKI Masaki

President
SEKISHO
CORPORATION

As society undergoes a paradigm shift, our company is developing a strategy for growth that looks forward over the next 100 years. We believe that every employee needs the ability to accept diverse values from broad perspectives and have a vision for the future.

That is why we send our employees to the graduate school of the University of Tsukuba, a university with a brand-new concept. We are confident that they will give innovative ideas back to society and foster a corporate climate and business practices characterized by independent thought and self-improvement. We always seek to encourage our employees to improve their abilities.

Find your ideal learning path



Find a research field that matches your interests.

Degree Programs in Systems and Information Engineering:
Degree Programs Correlation Diagram and Introduction to Each Degree Program

The Degree Programs in Systems and Information Engineering comprise eight degree programs.
A degree program refers to an educational program systematically organized to achieve specified learning outcomes that correspond with a human resource development vision and the relevant level of degree, such as master's and doctoral degrees.

Although all students select one of the degree programs to study, under the degree program system traditional boundaries between departments have been eliminated, and faculty members with experience in a wide range of fields collaborate as they engage in degree program education. All students now have access to research guidance from faculty members with experience in other fields. This was not possible in the past, and enables students to conduct research from a much wider perspective. Students then study based on their learning plan and career plan with the aim of acquiring a degree, while confirming with their supervisors the abilities they have acquired through the learning process.

Details of our eight degree programs are set out on pages 13 to 30. The introduction to each degree program starts with a graphic representation of the course model describing what kind of courses students can take and what they can aspire to upon program completion.
Use them to identify and compare our eight distinctive degree programs while reflecting on your aspirations and the career plan you have in mind.

Degree Programs in Systems and Information Engineering: Degree Programs Correlation Diagram

Q. What are your aspirations for graduate school? Your answers will identify the most suitable research field for you.

Master's and Doctoral Programs in Policy and Planning Sciences

A. I would like to address urban/regional /environmental issues.

ISHII Norimitsu* URATA Junji EOM Sunyong
KAIDA Naoko TOBITA Mikio
HASEGAWA Hiroshi* MATSUHASHI Keisuke* MURAKAMI Akinobu
YAMAMOTO Sachiko

Master's and Doctoral Programs in Risk and Resilience Engineering

MENO Fumitake* YAMANO Hiroya*

A. I would like to address urban risk issues such as disaster prevention /crime prevention/transport.

Urban Resilience and Disaster Management

UMEMOTO Michitaka USUDA Yuichiro**
KINOSHITA Yohei SAKAI Naoki**
SUZUKI Tsutomu FUJIWARA Hiroyuki**
TANIGUCHI Ayako

A. I would like to address environmental and energy issues.

Environmental and Energy Systems

AKIMOTO Yutaro OKAJIMA Keiichi
KATO Kazuhiko** SUZUKI Kengo
TAHARA Kiyotaka** HATANO Yuko
YAMAMOTO Hiromi** SHOJI Gaku
ZUSHI Yasuyuki **

A. I would like to address cyber risk issues with information security.

Information Systems and Security

OMOTE Kazumasa SHIMAOKA Masaki**
TAKAHASHI Taisei NISHIDE Takashi
HOSHIKAWA Naoto
TSUDA Kazuhiko(Tokyo) YOSHIDA Mitsuo(Tokyo)

A. I would like to address issues in risk forecast /assessment/control with mathematical information.

Foundations of Risk Analysis and Resilience Assessment

SATO-ILIC Mika ABE Genya** ITOH Makoto
MISAKI Hiroumi ENDO Yasunori OKABE Kohei**
KITAJIMA Sou** SAITO Yuichi
SATO Toshihisa** TAKAYASU Akitoshi
FURUKAWA Hiroshi
KINO Yasunobu(Tokyo) KURAHASHI Setsuya(Tokyo)

Master's Program in Service Engineering

A. I would like to address urban/regional issues.

AMEMIYA Mamoru ARITA Tomokazu USHIJIMA Koichi
URATA Junji OTA Mitsuru OKAMOTO Naohisa
OKUSHIMA Shinichiro KAWASHIMA Hiroichi TANIGUCHI Mamoru
TSUTSUMI Morito TOBITA Mikio FUJII Sayaka
FUJIKAWA Masaki MATSUBARA Kosuke WATANABE Shun
WADA Kentaro

A. I would like to address social/economic issues.

AKIYAMA Eizo ANNO Hidekazu UEICHI Hideo
OKUBO Masakatsu ORIHARA Masanori SAKUDO Mari
SANO Yukie SAWA Ryoji TAKAHASHI Hiroki
TRAN Lam Anh Duong HARADA Nobuyuki

A. I would like to address business issues.

ARIMA Sumika ONISHI Masaki* OKADA Yukihiko
KUROSE Yuta SHIGENO Maiko SHIDA Yohei
TAKANO Yuichi ZHANG Yongbing HACHIMORI Masahiro
PHUNG-DUC Tuan MIAO Ying YOSHISE Akiko

Master's and Doctoral Programs in Engineering Mechanics and Energy

A. I would like to research durability evaluation technology and advanced simulation technology for materials.

ENAMI Kazuhiro
SHINTAKU Yuichi
HARADA Yoshihisa*
MATSUDA Akihiro
MATSUDA Tetsuya
MORITA Naoki

A. I would like to research innovative astronautics.

KAMEDA Toshihiro
SAKAKITA Hajime*
SUGITA Hiroyuki*
NISHIOKA Makihito
FUJINO Takayasu
MATSUMOTO Satoshi*
MIZUTANI Tadahito*
YOKOTA Shigeru

A. I would like to research disaster control and infrastructure management.

ASAI Takehiko
ISOBE Daigoro
KANAKUBO Toshiyuki
SHOJI Gaku
NISHIO Mayuko
MATSUSHIMA Takashi
MITSUME Naoto
YASOJIMA Akira
YAMAMOTO Kyosuke

A. I would like to research energy conversion systems for a sustainable society.

AKI Hirohisa ISHIDA Masayoshi
KANAGAWA Tetsuya KANEKO Akiko
SATO Hiroyuki* KODAIRA Daisuke
SHEN Biao SHIRAKAWA Naoki
DAIRAKU Koji TAKEWAKA Satoshi
DENDA Masatoshi* MONJI Hideaki
YOO Eunjoo* YOSHIDA Hiroyuki*

As of February 1, 2024

Master's and Doctoral Programs in Intelligent and Mechanical Interaction Systems

Doctoral Program in Empowerment Informatics

A. I would like to research intelligent, user-friendly computer systems designed for coexistence with humans.

System Design

IENAGA Naoto　KAWASAKI Masahiro　KAWAI Shin
SHIBUYA Takeshi　NIIZATO Takayuki　NOBUHARA Hajime
HASEGAWA Manabu　MORITA Masahiko

A. I would like to research human-machine systems and robotics involving both humans and systems.

Man-Machine System and Robotics

AIYAMA Yasumichi　IZAWA Jun　UEHARA Akira
KAWAMOTO Hiroaki　KURODA Yoshihiro　SUZUKI Kenji
ZEMPO Keiichi　TANAKA Fumihide　TEZUKA Taro◎
NAKAUCHI Yasushi　HASHIMOTO Yuki　HASSAN Modar
HACHISU Taku　PUENTES Sandra　MOCHIYAMA Hiromi
YEM Vibol　YANO Hiroaki

A. I would like to research highly mechanized systems such as hardware and associated measurement and control technology, as well as human interaction with such systems.

Instrumentation and Control Engineering

NGUYEN Van Triet　SAKAINO Sho　TAKATANI Tsuyoshi
DATE Hisashi　MAEDA Yuka　YABUNO Hiroshi
YAMAGUCHI Tomoyuki　WAKATSUKI Naoto

A. I would like to research communication systems, human informatics, and multimedia that integrate software and hardware.

Communication System

UTSURO Takehito　EBIHARA Tadashi　KAKEYA Hideki
KAMEDA Yoshinari　KITAHARA Itaru
KUMANO Shiro　KOGA Hiroki　XIE Chun
TSUKADA Masato　HOSHINO Junichi

A. I would like to develop intelligent interaction technology in wide range of industrial technology fields.

KANEHIRO Fumio*　KAMIMURA Akiya*
KURATA Takeshi*　GOTO Masataka*
SAKANASHI Hidenori*　SAGAWA Ryusuke*
TSURUGIZAWA Tomokazu*　HASHIMOTO Naohisa*
HAMASAKI Masahiro*　MURAKAWA Masahiro*
YODA Ikushi*

Master's and Doctoral Programs in Computer Science

A. I would like to be an expert in mathematical information engineering.

AIHARA Ikkyu　IMAKURA Akira　KAWABE Tohru
NGUYEN DAI HAI　SAKURAI Tetsuya
SANO Yoshio　SHIKANO Yutaka　TOKUNAGA Ryuji
NAKATA Ayako*　HIRATA Yoshito
FUTAMURA Yasunori　BOGDANOVA Anna　MORIKUNI Keiichi

A. I would like to be an expert in intelligent software.

UNNO Hiroshi　OHYA Akihisa　KAMEYAMA Yukiyoshi
KAWAGUCHI Ikkaku　SHIZUKI Buntarou　TAKAHASHI Shin
MISUE Kazuo　MIZUTANI Tetsuya　VASILACHE Simona
YOROZU Ayanori

A. I would like to be an expert in software systems.

ABE Hirotake　AMAGASA Toshiyuki　OYAMA Yoshihiro
OKA Mizuki　KATO Kazuhiko　KITAGAWA Hiroyuki
SHIOKAWA Hiroaki　SHINJO Yasushi　CHEN Hanxiong
TSUGAWA Sho　HASEBE Koji　BOU Savong
HORIE Kazumasa　MAEDA Atsushi　MACHIDA Fumio

A. I would like to be an expert in computer architecture.

KANAZAWA Kenji　KIMURA Shigetomo　KOBAYASHI Ryohei
SATO Akira　SATO Mitsuhisa*　SANNOMIYA Shuji
SHOUNO Kazuhiro　TAKAHASHI Daisuke　TADANO Hiroto
TATEBE Osamu　TANIMURA Yusuke*　TOMIYASU Hiroshi
NAKADA Hidemoto*　NUKADA Akira　FUJITA Norihisa
BOKU Taisuke　YAMAGIWA Shinichi　YAMAGUCHI Yoshiki

A. I would like to be an expert in media engineering.

ENDO Yuki　KANAMORI Yoshihiro　KAMEYAMA Keisuke
KUDO Hiroyuki　SUZUKI Taizo　TAKIZAWA Hotaka
MITANI Jun　YAMADA Takeshi

A. I would like to be an expert in intelligent systems.

AKIMOTO Yohei　ARANHA Claus　IIZUKA Satoshi
IGARASHI Yasuhiko　INUI Takashi　KUNIHIRO Noboru
KOBAYASHI Takumi*　SATOH Yutaka*　FUKUI Kazuhiro
FUKUCHI Kazuto　YAMAMOTO Mikio　YE Xiucai

Master's and Doctoral Programs in Life Science Innovation: Bioinformatics

A. I would like to be an expert in bioinformatics.

AOSHIMA Ken**　YE Xiucai　NGUYEN DAI HAI
SAKURAI Tetsuya　TAKIZAWA Hotaka　NIKAIDO Itoshi**
FUTAMURA Yasunori　MASUYA Hiroshi**　MIYAZAKI Tsuyoshi**

Legend:
*　Professors and Associate Professors of the Cooperative Graduate School Program
**　Professors and Associate Professors of the Collaborative Graduate School Program
(Tokyo)　Professors at Tokyo Campus
◎　Professors in charge of Master's and Doctoral Programs in Intelligent and Mechanical Interaction Systems only

Degrees Awarded: Master of Science in Policy and Planning Sciences, Doctor of Philosophy in Policy and Planning Sciences

Master's and Doctoral Programs in Policy and Planning Sciences

Educational Aims of the Degree Programs

Ⓜ In the **Master's Program**, students acquire basic knowledge in our three domains (listed below) and expert knowledge of at least one domain.

Financial/Human Resource Design: Finance & Optimization

Spatial/Environmental Design: Urban Planning

Organizational/Behavioral Design: Behavioral Science

The goal of this program is to develop highly capable professionals and international experts equipped with problem-solving skills.

Ⓓ Furthermore, in the **Doctoral program,** we aim to develop educators, researchers, and highly capable professionals equipped with skills in problem-finding as well as problem-solving and the ability to achieve internationally recognized research outcomes.

Course Model M Master's program

For those who aspire to be business consultants, managers of an organization, or financial planners

		Year 1	Year 2
Graduate General Education Courses/ Inter-disciplinary Foundation Courses		• Technical Communication • Introduction to Academic Integrity	
Degree Programs' Common Courses	Basic Subjects	• Game Theory • Statistical Analysis • Corporate Valuation	
	Specialized Subjects	• Business Strategies: Theory and Practice • Financial Management: Theory and Practice • Information Security • Discrete Mathematics • Theory of Asset Valuation • Theory and Practice of Economic Policy	
Degree Programs' Specialized Courses	Basic Subjects	• Internship in Policy and Planning Sciences	
	Specialized Subjects	• Basic Master's Seminar in Policy and Planning Sciences I • Special Master's Seminar in Policy and Planning Sciences I • Basic Master's Seminar in Policy and Planning Sciences II • Special Master's Seminar in Policy and Planning Sciences II • Facilitation Training Pre-Program in Policy and Planning Sciences I	• Special Master's Research Work in Policy and Planning Sciences I • Special Master's Research Work in Policy and Planning Sciences II • Facilitation Training Pre-Program in Policy and Planning Sciences II
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Achievement Level Assessment, Conference presentation, Poster presentation	Conference presentation, Poster presentation, Compiling the research

Thesis examination → Completion

Career after completion

Business consultants, managers of an organization, or financial planners

Those who completed this program are expected to be business consultants, managers of an organization or financial planners who are equipped with the abilities in business valuation and finance and are responsible in giving advice on a management strategy for companies, or planning and analyzing finace.

Course Model D Doctoral program

For those who aspire to be educators at graduate school

		Year 1	Year 2	Year 3
Graduate General Education Courses/ Inter-disciplinary Foundation Courses		• Globalization and Technology: Key Succss Factors for Future • Introduction to Academic Integrity		
Degree Programs' Common Courses	Specialized Subjects	• Special Lecture on Policy and Planning Sciences I	• Special Lecture on Policy and Planning Sciences II	
Degree Programs' Specialized Courses	Specialized Subjects	• Special Doctoral Seminar in Policy and Planning Sciences I • Special Doctoral Seminar in Policy and Planning Sciences II • Facilitation Training Program in Policy and Planning Sciences I	• Special Doctoral Seminar in Policy and Planning Sciences III • Special Doctoral Seminar in Policy and Planning SciencesIV	• Special Doctoral Research Work in Policy and Planning Sciences I • Special Doctoral Research Work in Policy and Planning Sciences II
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Conference presentation, Poster presentation	Conference presentation, Poster presentation	Compiling the research

Dissertation examination → Completion

Career after completion

Educators at graduate school

Those who completed this program are expected to be educators at graduate school who are equipped with abilities in research, education, and management.

● Features of the Degree Programs

○ **Two cycles and five educational focuses shape** educational guidelines for the programs.

The following two cycles foster **solution-finding skills:**

Social System Cycle for deductive understanding of a social phenomena

Data Analysis Cycle for inductive understanding of a social phenomena

The Five Educational Focuses

1. **Find**: the ability to deductively understand social phenomena through theory and experiential measurement.

2: **Analyze**: the ability to inductively understand social phenomena through data analysis.

3: **Plan**: the ability to design and restructure social systems based on understanding of social phenomena.

4: **Do**: the ability to create concrete policy proposals and design social experiments based on system design.

5: **See**: the ability to deepen both deductive and inductive understanding of social phenomena by measuring and evaluating social experiments and policy proposals.

○ **Multifaceted research supervision by the Advisory Group (AG) and research units.**

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
Ⓜ Master's Program	Ⓓ Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
International character	International character

Specific Comptences			
Ⓜ Master's Program		Ⓓ Doctoral Program	
Research ability	Basic knowledge and ability to set reseach tasks and carry out a research plan in the field of policy and planning sciences	Research ability	Ability to set leading-edge and advanced reseach tasks based on up-to-date specialized knowledge and carry out a research plan independently in the field of policy and planning sciences
Specialized knowledge	Advanced specialized knowledge and command of the field of policy and planning sciences	Specialized knowledge	Leading-edge and advanced specialized knowledge and command of the field of policy and planning sciences
Ethical view	Ethical view and ethical knowledge appropriate for highly-skilled professionals in the field of policy and planning sciences	Ethical view	Ethical view and ethical knowledge appropriate for highly-skilled professionals in the field of policy and planning sciences

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

Ⓜ Master's Program	Ⓓ Doctoral Program
• ALAS is conducted every semester (four times in total). This system is for assessing and confirming each student's achievement status of the five educational focuses: Find, Analyze, Plan, Do and See, as well as knowledge of the three areas: Financial/Natural Resource Design, Spatial/Environmental Design and Organizational/Behavioral Design. • Basic Master's Seminar/Special Master's Seminar/Special Master's Research Work are reviewed and assessed in the following three phases: the Research Design Presentation (1st year), the Mid-term Presentation and the Final Presentation (2nd year).	• Achievement status of the competences and progress of dissertation are reviewed and assessed by Advisory Group in the following four phases: Special Doctoral Seminar in Policy and Planning Sciences Ⅰ, Ⅱ, Ⅲ and Ⅳ. • Furthermore, Dissertation Examination is conducted after going through the two phases: Preliminary Examination (a part of Special Doctoral Research Work in Policy and Planning Sciences Ⅰ) and Final Defense (a part of Special Doctoral Research Work in Policy and Planning Sciences Ⅱ).

Degrees Awarded: Master of Engineering in Service Science

Master's Program in Service Engineering

Educational Aims of the Degree Programs

The service sector generates 70% of added value and employment in the current socio-economic environment. Our future lives will require human resources with the knowledge and skills to create new and better services. This has resulted in a dramatic increase in social need for "service engineering" as a new academic field.

Ⓜ The Master's Program in Service Engineering is a professional research degree program which aims to foster next-generation leaders who can address service-related social problems today and in the future, create new methods and practices, and contribute to socio-economic development.

Course Model M **Master's program** For those who aspire to be entrepreneurs and person in charge of corporate planning

		Year 1	Year 2
Graduate General Education Courses/ Inter-disciplinary Foundation Courses		• Technical Communication • Introduction to Academic Integrity	
Degree Programs' Common Courses	Basic Subjects	• Economics of Information Networks • Tourism Science • Financial Service and Decision Making • Wellness Service Science • Transportation Service Design	• Comprehensive Sport Management
Degree Programs' Specialized Courses	Basic Subjects	• Consumer Psychology • Regional Data Analysis • Big Data Analytics • Applied Optimization • Public Infrastructure Planning • Information Networks • Service Accounting • Management of Technology • Place Making	
	Specialized Subjects	• Special Seminar in Service Engineering Ⅰ • Special Seminar in Service Engineering Ⅱ • Internship (Master's Program in Service Engineering)	• Special Research Work in Service Engineering Ⅰ • Facilitation Training Program in Service Engineering • Special Research Work in Service Engineering Ⅱ
Out-of-classroom activities		IINFOSS Information Ethics Course, Teaching Assistant, Achievement Level Assessment, Conference presentation, Poster presentation	Conference presentation, Poster presentation, Compiling the research

Thesis examination → Completion

Career after completion

Entrepreneurs and person in charge of corporate planning

Those who completed this program are expected to be entrepreneurs and person in charge of corporate planning who are equipped with ability to imagine the future and creativity, and will realize innovation and renovation in service industry and public offices.

● Features of the Degree Program

○ **The world's first degree program based on the empirical research by our faculty**

Our empirical research has shown that planning and development of successful services in Japan has similarities with the target costing methods used by Japanese manufacturing firms. These methodologies are systematized using knowledge from four areas: (1) science of effectiveness, (2) science of efficiency, (3) art of integration, and (4) ongoing evolution after initial implementation.

Based on such academic discoveries, our program develops high-level professionals capable of imagining the future by realizing the benefits of basic theory application and systematic development of new and/or better services. Upon completion, students are awarded a Master of Engineering in Service Science. Our vision is to educate our students through cooperation with Japanese service-sector organizations while contributing to regional development and generating advances in technology and pure theoretical research.

● Competences of the Degree Program

Students are able to acquire **the following competences** up until completion.

Generic Competences	
Ⓜ Master's Program	
Ability to use knowledge	
Management ability	
Communication ability	
Group skill	
International character	
Specific Comptences	
Ⓜ Master's Program	
Research ability	Basic knowledge and ability to set reseach tasks and carry out a research plan in the field of service engineering
Specialized knowledge	Advanced specialized knowledge and command of the field of service engineering
Ethical view	Ethical view and ethical knowledge appropriate for highly-skilled professionals in the field of service engineering

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

Ⓜ Master's Program
• ALAS is conducted every semester (four times in total). In this system, students have a meeting with their supervisors and check their achievement status of the following items together: learning status of the nine compulsory courses, achievement status of the specialized courses, and progress of the Master's thesis.
• Special Seminar in Service Engineering/Special Research Work in Service Engineering are reviewed and assessed in the following three phases: the Research Design Presentation in the 1st year, the Mid-Presentation and the Final Presentation in the 2nd year.

Degrees Awarded: Master of Engineering, Doctor of Philosophy in Engineering

Master's and Doctoral Programs in Risk and Resilience Engineering

Educational Aims of the Degree Programs

Faced with today's increasingly unstable social conditions, our biggest challenge is to create resilient social systems capable of recovering from and flexibly responding to unforeseen contingencies, while maintaining and providing necessary functions. This requires establishment of **appropriate risk management systems to provide the strength and flexibility needed to achieve safety and security for an information-based society and economy**, at both national and regional levels.

Ⓜ The purpose of the **Master's program** is to foster highly specialized professionals capable of giving back to society as a result of studies pursued in view of real-world issues. The aim is for our graduates to help create a resilient society by applying the results of risk analysis and assessment obtained using engineering methodology.

Ⓓ In the **Doctoral program**, in addition to the above, we aim to foster academic and global human resources equipped with both research skills based on theoretical understanding and advanced practical skills.

Course Model M Master's program

For those who aspire to be security engineers at IT consulting firms

		Year 1	Year 2
Graduate General Education Courses/ Inter-disciplinary Foundation Courses		• Introduction to Risk and Resilience	
Degree Programs' Common Courses	Basic Subjects	• Introduction to Soft Computing • Advanced Information Systems • Advanced Course on Cryptography • Data Analysis • Data Mining	
	Specialized Subjects	• Philosophical Scientific Perspectives on Risk and Safety • Financial Cryptography and InformationSecurity • Seminar in Cyber Resilience • Advanced Course on Cyber Security	• Advanced Course in Cyber Risk
Degree Programs' Specialized Courses	Basic Subjects	• Internship in Policy and Planning Sciences	
	Specialized Subjects	• Seminar in Risk and Resilience Engineering I • Research in Risk and Resilience Engineering I • Group Project Based Learning in Risk and Resilience Engineering • Academic Reading in Risk and Resilience Engineering I • Internship B in Risk and Resilience Engineering in Master's Program	• Seminar in Risk and Resilience Engineering II • Project Research in Risk and Resilience Engineering
Out-of-classroom activities		Basic learning, Developing programming skills, Making research presentation	Developing programming skills, Making research presentation, Conference presentation, Compiling the research

Thesis examination → Completion

Career after completion

Those who completed this program are expected to be information technology engineers in the ICT industry.

Course Model D Doctoral program

For those who aspire to be researchers at the companies working on self-driving cars

		Year 1	Year 2	Year 3
Degree Programs' Common Courses	Specialized Subjects	• Human Factors		
Degree Programs' Specialized Courses	Specialized Subjects	• Advanced Seminar in Risk and Resilience Engineering • Internship A in Risk and Resilience Engineering in Doctoral Program	• Advanced Group Project Based Learning in Risk and Resilience Engineering • Risk and Resilience Engineering Case Study	• Advanced Research in Risk and Resilience Engineering
Out-of-classroom activities		Basic learning, Field research, Making research presentation	Field research, Conference presentation, Writing academic papers	Writing academic papers, Compiling the research

Dissertation examination → Completion

Career after completion

Those who completed this program are expected to be researchers of the interaction between human and machine such as self-driving system in the field of professional and technical service industry.

● Features of the Degree Program

○ New educational system: **Collaborative Graduate School Program**

Faculty members in charge of the degree programs include full-time university faculty members and frontline researchers at companies and research institutions from the Resilience Research and Education Promotion Consortium.

Please see page 7 for more details on our Collaborative Graduate School Program.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
Ⓜ Master's Program	Ⓓ Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
International character	International character

Specific Competences			
Ⓜ Master's Program		Ⓓ Doctoral Program	
Fundamental knowledge and abilities in the engineering	Fundamental knowledge and abilities appropriate for highly-skilled professionals in the engineering	Fundamental knowledge and abilities in the engineering	Knowledge and abilities appropriate for researchers or highly-skilled professionals in the engineering
Knowledge of basic theories and technologies	Knowledge of basic theories for the analysis and assessment of risk and resilience as well as knowledge of information processing technology related to the analysis and assessment of risk and resilience	Knowledge of theoretical bases and technologies	Knowledge of theoretical bases for the analysis and assessment of risk and resilience as well as knowledge of advanced information processing technology related to the analysis and assessment of risk and resilience Knowledge of real-world problems
Knowledge of real-world problems	Knowledge of real-world problems subject to risk and resilience engineering	Knowledge of real-world problems	Profound knowledge of real-world problems subject to risk and resilience engineering
Broad perspectives	Ability to see the scope of risk and resilience engineering from a broad perspective	Broad perspectives	Ability to see the scope of risk and resilience engineering from broad and comprehensive perspectives.
Abilities in identifying and solving problems	Abilities to understand the process of identifying problems to solving them and develop specific solutions	Abilities in identifying and solving problems	Abilities to deeply understand the process of identifying problems to solving them and develop specific and creative solutions
Global communication skills	Abilities to take responsibilities when working in research groups and projects, have sufficient communication skills, and take leadership when necessary	Global communication skills	Abilities to take responsibilities when working in research groups and projects and take leadership with effective communication skills

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

Ⓜ Master's Program	Ⓓ Doctoral Program
ALAS works as quality assurance in education. In the Master's Program, ALA is conducted based on the following six perspectives. 1. Fundamentals of engineering: Basic knowledge and academic skills of advanced professionals in engineering were gained 2. Knowledge of basic theories and related skills: Knowledge of fundamental theories for risk and resilience analysis and assessment, and knowledge of information processing technologies related to risk and resilience analysis and assessment were gained 3. Knowledge of issues in the real world: Knowledge of real-world issues covered by risk and resilience engineering was gained 4. Broad perspective overlooking circumstance: Ability to see the subject of risk and resilience engineering from a broad perspective was gained 5. Abilities of problem setting and solving: Ability to understand the process from setting up problems to solving them by engineering means, and to devise and develop specific solutions for problems related to risk and resilience were gained 6. Global communication ability: Ability to fulfill assigned roles in a research team or research project, demonstrate adequate communication skills, and take on leadership roles as needed was gained In the ALA, each student have a meeting with more than three faculty members and get feedback in the ALA committee which is conducted twice a year. Students get feedback and use them to improve learning plan. In the final ALA, when students are approved that they are eligible for Master of Engineering in the all six items, they can be regarded as passing the final examination.	ALAS works as a quality assurance system in education. In the Doctoarl Program, ALA is conducted based on the following six perspectives. 1. Fundamentals of engineering: Basic knowledge and academic skills of researchers or advanced professionals in engineering were gained 2. Knowledge of basic theories and related skills: Knowledge of theoretical foundations for risk and resilience analysis and assessment based on fundamentals of engineering, and knowledge of advanced information processing technologies related to risk and resilience analysis and assessment were gained 3. Knowledge of issues in the real world: In-depth knowledge of real-world issues covered by risk and resilience engineering was gained 4. Broad perspective overlooking circumstance: Ability to see the subject of risk and resilience engineering from a broad and comprehensive perspective was gained 5. Abilities of problem setting and solving: Ability to understand the process from setting up problems to solving them by engineering means in depth and to devise and develop specific solutions for problems related to risk and resilience were gained 6. Global communication ability: Ability to fulfill assigned roles and take leadership in a research team or research project with high communication skills was gained In the ALA, each student have a meeting with more than three faculty members and get feedback in the ALA committee which is conducted twice a year. Students get feedback and use them to improve learning plan. In the final ALA, when students are approved that they are eligible for Ph.D in Engineering in the all six items, they can be regarded as passing the final examination.

Degrees Awarded: Master of Engineering, Doctor of Philosophy in Engineering

Master's and Doctoral Programs in Computer Science

Educational Aims of the Degree Programs

M In the **Master's Program**, we aim to foster human resources who are equipped with:

- **In-depth expertise in various information technology fields**
- **Knowledge needed in international society**
- **Professional research capabilities and practical skills**
- **Creativity and flexibility**

We also aim to develop people who can utilize these abilities to contribute to problem-solving in specific fields.

D In the **Doctoral Program**, in addition to the above, we aim to foster human resources who can lead problem-solving efforts.

Course Model M Master's program

For those who aspire to be experts of making use of IT skills for applied science

		Year 1	Year 2
Degree Programs' Common Courses	Basic Subjects	• Advanced Course on Cryptography • Data Analysis	
	Specialized Subjects	• Special Lecture on Numerical Simulation • Advanced Computer Networks • Human-centered AI A • Data Engineering I • Advanced Course in High Performance Computing • Human-centered AI B • Basic Computational Biology	• Advanced Course in Distributed Systems
Degree Programs' Specialized Courses	Basic Subjects	• Internship I	
	Specialized Subjects	• Seminar in Computer Science • Research in Computer Science I	• Research in Computer Science II
Out-of-classroom activities		CS Seminar	Master Thesis Midterm Presentation, Master Thesis Final Presentation

Thesis examination → Completion

Career after completion

Those who completed this program are expected to be experts of making use of IT skills for applied science in companies, research and educational institutions, and public offices. Some of them are expected to go on to the doctoral programs in order to be equipped with advanced knowledge and skills, and become researchers, educators, and leaders who work in companies and public offices.

Course Model D Doctoral program

For those who aspire to be researchers who apply informatics to science and engineering

		Year 1	Year 2	Year 3
Degree Programs' Specialized Courses	Specialized Subjects	• Research in Computer Science • Computer Science Seminar A	• Interdisciplinary Laboratory Internship I	• Interdisciplinary Laboratory Internship II
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Writing international conference papers	Making presentation at international conference, Internship at industrial research institutes, Writing journal papers	Internship in cross-disciplinary laboratories overseas, Doctoral Preliminary Examination, Doctoral Final Examination

Dissertation examination → Completion

Career after completion

Those who completed this program are expected to initiatively be engaged in research and education which apply informatics to science and engineering in research and educational institutions, and develop innovative technology. Furthermore, some of them are expected to take the initiative in solving complicated social problems using information technology in companies, research and educational institutions, and public offices.

● Features of the Degree Program

◯ **The Center for Artificial Intelligence Research (C-AIR) serves as a hub for advanced research projects**

The C-AIR acts as a hub for interdisciplinary research, fostering groundbreaking research projects in the field of artificial intelligence.

◯ **Practical, appealing curriculum delivered through industry-academia collaboration**

We offer courses in collaboration with industry, PBL courses, courses that develop teaching skills, and courses in new and advanced research fields.

◯ **The Computer Science English Program**

The Computer Science English Program fosters qualified international researchers in computer science. This program is for those who wish to earn a Master's degree, and all lectures are conducted in English. The program aims to foster international-minded human resources who can work on a global scale.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
M Master's Program	D Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
International character	International character

Specific Competences			
M Master's Program		D Doctoral Program	
Research ability	Abilities to identify unsolved problems based on advanced specialized knowledge and technologies in a wide range of information technology fields, draw a map to solve them, and successfully achieve it	Research ability	Abilities to identify unsolved problems based on leading-edge and advanced specialized knowledge and technologies in a wide range of information technology fields, draw a map independently to solve them, and successfully achieve it
Specialized knowledge	Advanced specialized knowledge, technologies, and command of them in a wide range of information technology fields	Specialized knowledge	Leading-edge and advanced specialized knowledge, technologies, and command of them in a wide range of information technology fields
Ethical view	Enlightened ethical view in a wide range of information technology fields	Ethical view	Enlightened ethical view in a wide range of information technology fields

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

M Master's Program	D Doctoral Program
• Assessment of learning outcomes is conducted based on "Achievement Level Assessment sheet (ALA sheet)". • At "CS Seminar" of the 1st year, students give a presentation of the research outcomes and receive assessment and feedback. • At the end of the 1st year, students check the ALA sheet and their achievement status with their supervisors and review learning plan of the 2nd year. • At Master's Thesis Mid-term Presentation at the 2nd year, students give a presentation of the research outcomes for writing Master's thesis and receive mid-term assessment and feedback.	• At Research in Computer Science/Computer Science Seminar A as compulsory subjects, supervisors check their students' research progress. • At "CS Research Seminar", students give a mid-term presentation of their research and get feedback. • At Doctoral Final Examination, students are assessed based on degree examination criteria which prescribed separately.

Degrees Awarded: Master of Engineering, Doctor of Philosophy in Engineering

Master's and Doctoral Programs in Intelligent and Mechanical Interaction Systems

Educational Aims of the Degree Programs

Ⓜ In the Master's Program, we aim to foster highly skilled professionals who can identify and solve problems from broad perspectives, equipped with the following attributes:

- Fundamental knowledge and high ethical standards in the field of engineering
- Specialized knowledge and skills relating to intelligent and mechanical interaction systems*
- Research skills

Ⓓ In the Doctoral Program, we aim to foster researchers and highly skilled professionals who can identify and solve crucial problems from broad perspectives, equipped with the following attributes:

- Broad knowledge and sound ethics in the field of engineering
- Advanced specialized knowledge and skills relating to Intelligent and Mechanical Interaction Systems*
- Research skills enhanced by creativity

*Intelligent and Mechanical Interaction Systems (IMIS) are engineering systems which are developed based on mathematical models that represent complex human, social, and natural phenomena and theories from disciplines such as mathematics, physics, and informatics. Such systems contribute to society through the cooperation of elements with various functions.

Course Model M Master's program ① For those who aspire to be professional engineers who are engaged in developing products and systems at companies in the electrical / mechanical / information and communication fields.

		Year 1	Year 2
Degree Programs' Specialized Courses	Basic Subjects	• Fundamentals of IMIS • Fundamentals of Mathematics in IMIS • Fundamental Theory of Intelligent Interaction Systems / Fundamental Mathematical System of Mechanical Interaction Systems • Statistical Data Analysis for IMIS • Tools and Practices for Intelligent Interaction Systems A and B / Tools and Practices for Mechanical Interaction Systems • TOEIC Exercise in IMIS Ⅰ	• TOEIC Exercise in IMIS Ⅱ
	Specialized Subjects	• Research in IMIS Ⅰ • Seminar in IMIS Ⅰ • Collaboratory Research Workshop in IMIS Ⅰa • Laboratory Work in Intelligent Interaction Systems A and B / Laboratory Work in Mechanical Interaction Systems • Specialized Subjects of Degree Programs' Specialized Courses	• Research in IMIS Ⅱ • Seminar in IMIS Ⅱ • Oral Presentation Workshop in IMIS Ⅱa • Collaboratory Research Workshop in IMIS Ⅱa
Out-of-classroom activities		Internship, INFOSS Information Ethics Course, TOEIC score	Conference presentation, TOEIC score, Achievement Level Self-Assessment Report

Thesis examination → Completion

Career after completion

Those who completed this program are expected to be professional engineers who are engaged in developing products and systems at the companies in electrical / mechanical / information and communication fields.

Course Model M Master's program ② For those who aspire to go on to the doctoral program.

		Year 1	Year 2
Degree Programs' Specialized Courses	Basic Subjects	• Fundamentals of IMIS • Fundamentals of Mathematics in IMIS • Fundamental Theory of Intelligent Interaction Systems / Fundamental Mathematical System of Mechanical Interaction Systems • Statistical Data Analysis for IMIS • Tools and Practices for Intelligent Interaction Systems A and B / Tools and Practices for Mechanical Interaction Systems • TOEIC Exercise in IMIS Ⅰ	• TOEIC Exercise in IMIS Ⅱ
	Specialized Subjects	• Research in IMIS Ⅰ • Seminar in IMIS Ⅰ • Oral Presentation Workshop in IMIS Ⅰa • Reseach Proposal Writing Workshop in IMIS Ⅰ • Collaboratory Research Workshop in IMIS Ⅰa • Laboratory Work in Intelligent Interaction Systems A and B /Laboratory Work in Mechanical Interaction Systems • Specialized Subjects of Degree Programs' Specialized Courses	• Research in IMIS Ⅱ • Seminar in IMIS Ⅱ • Oral Presentation Workshop in IMIS Ⅱa • Oral Presentation Workshop in IMIS Ⅱb • Reseach Proposal Writing Workshop in IMIS Ⅱ • Reseach Paper Writing Workshop in IMIS • Collaboratory Research Workshop in IMIS Ⅱa
Out-of-classroom activities		Teaching Assistant, INFOSS Information Ethics Course, TOEIC score, Conference presentation	Teaching Assistant, Conference presentation, International conference presentation, Peer-reviewed journals(First author), TOEIC score, Achievement Level Self-Assessment Report

Thesis examination → Completion

Career after completion

Those who completed this program are expected to go on to the doctoral programs.

Course Model D Doctoral program

For those who aspire to be educators at universities and researchers at national research institutes.
/ For those who aspire to be high-level professional engineers who are engaged in research development at companies in the electrical / mechanical / information and communication fields.

		Year 1	Year 2	Year 3
Degree Programs' Specialized Courses	Specialized Subjects	• Research in IMIS A • International Conference Paper Presentation Workshop in IMIS • Research Paper Presentation Workshop in IMIS Ⅰ • Collaboratory Research Workshop in IMIS Ⅲ • Reseach Proposal Writing Workshop in IMIS Ⅲ	• Research in IMIS B • Research Paper Presentation Workshop in IMIS Ⅱ • Collaboratory Research Workshop in IMIS Ⅳ • Reseach Proposal Writing Workshop in IMIS Ⅳ	• Research in IMIS C
Out-of-classroom activities		IINFOSS Information Ethics Course, Teaching Assistant, International conference presentation, Peer-reviewed journals(First author)	APRIN, Teaching Assistant, Conference presentation, Internship, Peer-reviewed journals(First author), Poster presentation	Conference presentation, Peer-reviewed journals (First author), Achievement Level Self-Assessment Report

Dissertation examination → Completion

Career after completion

Those who completed this program are expected to be educators at universities, researchers at national research institutes, or high-level professional engineers who are engaged in research development at the companies in electrical / mechanical / information and communication fields.

● Features of the Degree Program

In order to provide students with systematic education, it is necessary to strengthen the systematic development of education in line with the purpose of the curriculum-based graduate school system, which awards a specific degree to those who have completed a given course of education. This program aims to validate graduate school education through the following measures.

1. Reinforcement of the interconnection between Master's and Doctoral programs

This course is divided into Master's and Doctoral programs, but has a unified five-year educational curriculum. In addition, in cooperation with the College of Engineering Systems, we provide an integrated educational program for six years (undergraduate + Master's degree) or nine years (undergraduate + Master's degree + Doctoral degree) to develop engineers and researchers who meet the needs of the times. Even if a student enters at the level of the master's program or the Doctoral program, it is possible to receive almost the same education by taking additional basic mathematics courses, undergoing remedial education, and conducting special experiments.

2. Curriculum organization focusing on research skill development

In addition to specialized subjects aimed at acquiring specialized knowledge in each field, core subjects, basic mathematics subjects, tool exercises, English exercises, and special exercises are provided as common subjects in order to enhance research skills.

3. Multiple supervisor system

This program has a multi-advisor system under which each graduate student has one supervisor and two assistant supervisors. Students can participate in research activities not only in their own laboratory, but also in seminars led by the assistant supervisors, and receive guidance from the assistant supervisors during graduate school seminars.

4. Graduate school seminars

When students present their research in this program, question and answers sessions are conducted to facilitate discussion of the presented work. These sessions are held weekly in a multidisciplinary fashion where presenters receive feedback through comments and questions from supervisors, other professors, and students. In addition, a poster presentation takes place at the fall semester. Along with faculty members and students, many company representatives attend this presentation, which serves as a job-hunting event.

5. Cooperative Graduate School System

Tsukuba Science City is home to a variety of research institutions besides the University of Tsukuba. A network for active scientific exchange has been constructed among all these institutions. Through this program, a degree can be obtained by receiving research guidance from faculty members (Cooperative Graduate School Program) of the National Institute of Advanced Industrial Science and Technology (AIST).

6. Dual degree program (DDP)

This course allows students to enroll in the Doctoral program (main degree program), while concurrently enrolling in a sub-degree program enabling them to participate in a Master's program, a professional degree program offered by other research groups, or other degree programs. The DDP allows students to obtain a Master's degree corresponding to another degree program.

7. Active promotion of early completion

Early Completion Doctoral Program for Working People:

Our curriculum allows students to complete the Doctoral program in a minimum of one year.

Early completion program for general students:

Students who have achieved outstanding research results in the Master's program, completed the course with excellent grades, and proceed to the IMIS Doctoral program have the opportunity to shorten the Master's program by one year. Students showing outstanding achievements during the Doctoral program, are offered the possibility to complete their studies in one year at least. A student who complete the Master's course early and show eligibility to complete his/her Doctoral course early must be enrolled for at least two years in the Doctoral program.

8. Classes for working students

The University of Tsukuba has been enhancing education for working students in cooperation with industry and other organizations. This program also offers online courses for working students.

9. Student Awards

Students who have achieved outstanding results are recommended as candidates for the President's Award or the Dean's Award. A Master's thesis award and the Program Chair's award are also bestowed independently within our programs.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
M Master's Program	D Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
International character	International character

Specific Competences			
M Master's Program		D Doctoral Program	
Research ability	Abilities and basic technics to set appropriate research tasks, carry out a research plan, and attain meaningful achievements in the field of IMIS	Research ability	Abilities and advanced technics to set leading-edge research tasks, carry out a research plan independently, attain remarkable achievements in the field of IMIS, and communicate them to the local and international community
Specialized knowledge	Fundamental knowledge and ability appropriate for highly-skilled professionals in the field of engineering as well as advanced specialized knowledge and command of the field of IMIS	Specialized knowledge	Cutting-edge knowledge and advanced academic abilities suitable for researchers or highlyskilled professionals in the field of engineering as well as the field of IMIS
Ethical view	Ethical view and knowledge appropriate for researchers or highly-skilled professionals equipped with fundamental research skills in the field of engineering	Ethical view	Ethical view and knowledge appropriate for researchers or highly-skilled professionals equipped with advanced research skills in the field of engineering and profound ethical knowledge related to the field of IMIS

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

M Master's Program	D Doctoral Program
• In Seminar in IMIS I, students are evaluated while giving a presentation, summarizing their research outcomes during the first year. • In Seminar in IMIS II, students are evaluated while giving a presentation, summarizing their research outcomes. This presentation will be the basis of their thesis. • The supervisors regularly conduct ALA by evaluating the results of students' ALA self-assessment. • ALA examination is a requirement for degree completion and is conducted as a final exam. The examination is based on ALA standards and therefore is conducted separately by ALA's committee by assessing the evaluation plan proposed by the student's supervisor.	• In Research in IMIS A, students are evaluated while giving a presentation, summarizing their research outcomes. • In Research in IMIS B, students are evaluated while giving a presentation, summarizing their research outcomes. In case of students joining the Fast-track Doctoral Program, the evaluation is based on peer-reviewed journals publications. • In Research in IMIS C, a preliminary examination for dissertation is conducted. • The supervisors regularly conduct ALA by evaluating the results of students' ALA self-assessment. • ALA examination is a requirement for degree completion and is conducted as a final exam. The examination is based on ALA standards and therefore is conducted separately by ALA's committee by assessing the evaluation plan proposed by the student's supervisor.

Degrees Awarded: Master of Engineering, Doctor of Philosophy in Engineering

Master's and Doctoral Programs in Engineering Mechanics and Energy

Educational Aims of the Degree Programs

Ⓜ In the **Master's Program**, we aim to foster **researchers and highly skilled professionals** who have not only **advanced specialized knowledge in an engineering field such as machinery, architecture, social infrastructure, energy, and aerospace**, but also a broad perspective in the relevant research field and the ability to identify specific problems, **propose unique solutions**, and **effectively disseminate outcomes domestically and internationally**.

Ⓓ In the **Doctoral Program**, in addition to developing the abilities listed above, we aim to foster **educators, researchers, and highly skilled professionals** who can **manage research projects appropriately, take leading roles in society**, and **educate the next generation** studying in the engineering field.

Course Model M Master's program

For those who aspire to be highly skilled professionals in mechanical, civil, energy, and aerospace engineering

		Year 1	Year 2
Degree Programs' Common Courses	Basic Subjects	• Energy System Engineering • Advanced Fluid Mechanics 1 • Engineering of Electromagnetic Energy	
	Specialized Subjects	• Thermo-Fluids Measurement Techniques • Advanced Space-Development Technology • Advanced Dynamics of Compressible Flow	• Transport Phenomena • Advanced Reliability Engineering • Computational Fluid Dynamics
Degree Programs' Specialized Courses	Specialized Subjects	• Seminar in Engineering Mechanics and Energy I • Research in Engineering Mechanics and Energy I	• Seminar in Engineering Mechanics and Energy II • Research in Engineering Mechanics and Energy II
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Conference presentation, International conference presentation	Teaching Assistant, Conference presentation International conference presentation, Compiling the research

Thesis examination → Completion

Career after completion

Those who completed this program are expected to be engineers at business enterprises of mechanical, civil, energy, and aerospace field, researchers, and leaders at public research institutes. Some of them are expected to go on to the doctoral programs.

Course Model D Doctoral program

For those who aspire to be researchers and educators in mechanical, civil, energy, and aerospace engineering

		Year 1	Year 2	Year 3
Degree Programs' Specialized Courses	Specialized Subjects	• Seminar in Engineering Mechanics and Energy • Research in Engineering Mechanics and Energy • Energy System Engineering		
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Conference presentation	APRIN, Teaching Assistant, Conference presentation, International conference presentation, Writing research papers	Writing research papers, Compiling the research

Dissertation examination → Completion

Career after completion

Those who completed this program are expected to be researchers and innovators at companies of mechanical, civil, energy, and aerospace field, educators at universities and researchers at national research institutes.

● Features of the Degree Programs

○ Interdisciplinary education and research

The focus of our education and research is **macro-engineering technology based on mechanics**, where traditional boundaries between categories of engineering are being removed and disciplines are being integrated. We aim to foster engineers who have a broad perspective and creativity spanning conventional boundaries in the field.

○ Education and research by the Cooperative Graduate School

Researchers from national institutes such as the National Institute of Advanced Industrial Science and Technology (AIST), the Japan Aerospace eXploration Agency (JAXA), the Japan Atomic Energy Agency (JAEA), and the Public Works Research Institute (PWRI) are appointed as professors and associate professors of our university and provide students with research guidance utilizing the research facilities of their institutes.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
M Master's Program	D Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
International character	International character

Specific Competences			
M Master's Program		D Doctoral Program	
Research ability	Ability to identify problems in engineering mechanics and energy, propose solutions, and achieve them.	Research ability	Ability to identify advanced problems in engineering mechanics and energy, propose solutions, and achieve them.
Specialized knowledge	Ability to apply basic academic ability and advanced knowledge in engineering mechanics and energy.	Specialized knowledge	Ability to apply basic academic ability and leading-edge and advanced knowledge in engineering mechanics and energy.
Ethical view	Ethical view and ethical knowledge appropriate for highly-skilled professionals in the areas of engineering	Ethical view	Ethical view and ethical knowledge appropriate for highly-skilled professionals in the areas of engineering

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

M Master's Program	D Doctoral Program
• Supervisors and assistant-supervisors check the student's learning status of common subjects and specialized subjects. • Students give a presentation on research outcomes of the 1st year and those are assessed in Seminar in Engineering Mechanics and Energy I. • In Seminar in Engineering Mechanics and Energy Ⅱ, students clarify their own research's position. Then they give a presentation on research outcomes of the 2nd year and those are assessed. • Students give a presentation at the Master's thesis examination and the final defense. It will be assessed by the examination comittee.	• Supervisors and assistant-supervisors check the student's learning status of common subjects. • Students give a presentation on research outcomes and those are assessed in Seminar in Engineering Mechanics and Energy. • Students give a presentation at the Doctoral dissertation examination and the final defense. It will be assessed by the examination comittee.

Degrees Awarded: Master of Human Informatics, Doctor of Philosophy in Human Informatics

Doctoral Program in Empowerment Informatics

Educational Aims of the Degree Programs

Informatics supplements and extends human functions, enabling technology to work in harmony with people.

MD **This five-year doctoral program** aims to produce **global leaders who can design systems that empower humans**. Such leaders will be capable of exercising initiatives in a global community bringing together people of diverse cultural backgrounds.

Course Model MD **5-year Doctoral program** For those who aspire to be global leaders who work actively in various industries

		Year 1	Year 2	Year 3
Degree Programs' Common Courses	Specialized Subjects	• Basics of Machine Learning • Augmented Human (even number year) • Cybernics (IMIS) • Physiological and Physical Human Sensing (even number year) • Computational Haptics (even number year)	• Methods of Experimental Psychology (odd number year) • Computational Neuromotor Control (odd number year) • Real-World-Oriented Interface (odd number year)	
Degree Programs' Specialized Courses	Specialized Subjects	• Seminar in Empowerment Informatics I • Research in Empowerment Informatics I • Empowerment Informatics Project-based Research • Introduction to Empowerment Informatics	• Seminar in Empowerment Informatics II • Research in Empowerment Informatics II • Seminar in Empowerment Research Presentation	• Seminar in International Conference /Journal Article Presentation • Research in Empowerment Informatics III • Practical Training in Entrepreneurship
Out-of-classroom activities		INFOSS Information Ethics Course, Teaching Assistant, Language Proficiency Tests(TOEFL, IELTS, TOEIC, EIKEN, Duolingo English Test, etc.)	APRIN, Teaching Assistant, Conference presentation, Poster presentation, Peer-reviewed journals(First author), Language Proficiency Tests(TOEFL, IELTS, TOEIC, EIKEN, Duolingo English Test, etc.)	Conference presentation, Peer-reviewed journals(First author), Language Proficiency Tests(TOEFL, IELTS, TOEIC, EIKEN, Duolingo English Test, etc.)

Qualifying Examination

		Year 4	Year 5
Degree Programs' Common Courses	Specialized Subjects		
Degree Programs' Specialized Courses	Specialized Subjects	• Research in Empowerment Informatics IV • Practical Training in Engineering Residence	• Research in Empowerment Informatics V • Seminar in Journal Article Presentation
Out-of-classroom activities		Language Proficiency Tests(TOEFL, IELTS, TOEIC, EIKEN, Duolingo English Test, etc.)	Language Proficiency Tests(TOEFL, IELTS, TOEIC, EIKEN, Duolingo English Test, etc.)

Dissertation examination

Completion

Career after completion

Those who completed this program are expected to work in medical and health care industries, advanced car industries, Smart Home Appliances industries, and creative industries as industries that integrate *complement*, *harmony*, and *extension* of human functions.

● Features of the Degree Programs

The word "empowerment" originally means to "give abilities and powers to people." It has been used in a sociological sense to explain the process of realizing a society where individuals or groups can exert their latent abilities. In recent years, empowerment has been practiced in the fields of nursing and business. Empowerment Informatics is a branch of informatics that has been systematized to encourage and support human independence and autonomy, improving the quality of life.

In order to develop the abilities students need to create systems capable of empowering people, we offer an unique curriculum focused on developing **three competences: Interdisciplinary Ability, Presentation Ability, and Frontline Ability**.

We have established **a collaborative system in a multidisciplinary field consisting of informatics, engineering, art, psychology, neuroscience, clinical medicine, nursing science, business science, and corporate law**, and foster **global human resources** ; aiming to take the initiative and design systems that empower people in an international community with diverse cultural backgrounds.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
MD 5-year Doctoral Program	
Ability to create knowledge	
Management ability	
Communication ability	
Leadership ability	
International character	
Specific Competences	
MD 5-year Doctoral Program	
Interdisciplinary ability	Ability to apply specialized knowledge and relevant knowledge in the field of human informatics to various issues.
Presentation ability	Ability to set cutting-edge research tasks and produce internationally recognized research outcomes.
Frontline ability	Ability to plan to solve real-world issues and give a presentation on them, based on ethical standards and ethical knowledge appropriate for researchers or highly-skilled professionals in the field of human informatics.

● Achievement Level Assessment System (ALAS)

ALAS enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

MD 5-year Doctoral Program
• Assessment of learning outcomes is conducted based on "Standards of Achievement Level Assessment".
• At the EMP seminars of the 1st and 2nd year, students report their research progress and get assessment and feedback.
•At the end of the 1st to 4th year, students submit their Achievement Level Self-Assessment Report, undergo the Achievement Level Assessment from the research supervisor and confirm their research progress.
• At the end of the 2nd year, the Qualifying Examination (QE) is conducted. When students pass QE, they are able to earn the Master's degree and then start the research for doctoral dissertation.
• When students pass the Final Assessment of Student Achievement (FASA) conducted at the 5th year, they are able to submit the doctoral dissertation.

Degrees Awarded: Master of Bioinformatics, Doctor of Philosophy in Bioinformatics

Master's and Doctoral Programs in Life Science Innovation: Bioinformatics

Educational Aims of the Degree Programs

Ⓜ In the **Master's Program**, we aim to foster **highly skilled professionals who can use bioresources to open up new paths of progress in life sciences research and work on a global scale in the field of developing and managing innovative pharmaceuticals and functional foods**.

Ⓓ In the **Doctoral Program**, we aim to foster highly **skilled professionals and researchers who can produce internationally recognized research outcomes and work on a global scale** in the field mentioned above.

Course Model M Master's program

For those who aspire to be professionals and business person who are equipped with knowledge of bioinformatics and work on the global scale.

	Year 1	Year 2
Graduate General Education Courses		• Applied Ethics • Introduction to Environmental Ethics
Inter-disciplinary Foundation Courses	• Special Lecture on Science Communication	
Basic Subjects	• Introduction to Medicine • Introduction to Drug Discovery • Basic Bioinformatics • Introduction to Food Science • Master's Life Science Innovation Seminar • Practices in Life Science Innovation • Team Learning in Life Science Innovation • Responsible Conduct of Research • Master's Internship • Introduction to Bioresource • Introduction to Natural History	• Management in Pharmaceuticals and Food • Regulatory Science
Specialized Subjects	• Life Science Innovation Master's Special Seminar I Spring • Life Science Innovation Master's Special Research I Spring • Biomolecule and Medical Informatics • Computational Biology • Molecular and Cellular Biology of Disease I/ II • Advances in Cellular Regulation • Life Science Innovation Master's Special Seminar I Fall • Life Science Innovation Master's Special Research I Fall • Gene Analysis and Functional Genomics	• Life Science Innovation Master's Special Seminar II Spring • Life Science Innovation Master's Special Research II Fall • Life Science Innovation Master's Special Seminar II Spring • Life Science Innovation Master's Special Research II Fall
Out-of-classroom activities	Achievement Evaluation I	Midterm presentation, Achievement Evaluation II

Thesis examination → Completion

Career after completion

Those who completed this program are expected to be researchers, technical experts, business person, and civil servants in the area of Health Science, Medical care, Pharmaceutical, Food, and Environmental industries.

Course Model D Doctoral program

For those who aspire to be reseachers who are equipped with knowledge of bioinformatics and work on the global scale.

	Year 1	Year 2	Year 3
Graduate General Education Courses	• Global Communication Skills Training • English Presentations • Applied Ethics		
Basic Subjects	• Human Subjects Research: Basic • Doctor's life science innovation seminar	• Doctor's Internship	
Specialized Subjects	• Life Science Innovation Doctor's Special Seminar I Spring • Life Science Innovation Doctor's Special Research I Spring • Life Science Innovation Doctor's Special Seminar I Fall • Life Science Innovation Doctor's Special Research I Fall	• Life Science Innovation Doctor's Special Seminar II Spring • Life Science Innovation Doctor's Special Research II Spring • Life Science Innovation Doctor's Special Seminar II Fall • Life Science Innovation Doctor's Special Research II Fall	• Life Science Innovation Doctor's Special Seminar III Spring • Life Science Innovation Doctor's Special Research III Spring • Life Science Innovation Doctor's Special Seminar III Fall • Life Science Innovation Doctor's Special Research III Fall
Out-of-classroom activities	Achievement Evaluation I	Midterm presentation, Achievement Evaluation II	Achievement Evaluation III

Dissertation examination → Completion

Career after completion

Those who completed this program are expected to be researchers, technical experts, business person, and civil servants and be globally active to solve issues in the area of Health Science, Medical care, Pharmaceutical, Food, and Environmental industries.

● Features of the Degree Programs

○ Collaborative Graduate School System

In addition to full-time faculty members at the university, researchers from institutes belonging to the Life Science Promotion Association of Tsukuba (known as professors of the Collaborative Graduate School Program) play active roles in education and research. Under this system, students work on unresolved problems in society and open up paths to new progress in the field of bioinformatics.

○ Classes are conducted in English, and overseas researchers participate in education and research

To foster highly skilled professionals capable of working on a global scale, all lectures in our programs are conducted in English, and leading researchers from overseas research institutes conduct lectures and seminars.

● Competences of the Degree Programs

Students are able to acquire **the following competences** up until completion.

Generic Competences	
Ⓜ Master's Program	Ⓓ Doctoral Program
Ability to use knowledge	Ability to create knowledge
Management ability	Management ability
Communication ability	Communication ability
Group skill	Leadership ability
Global competency	Global competency

Specific Competences			
Ⓜ Master's Program		Ⓓ Doctoral Program	
Innovation potential	Creative thinking ability for use in the field of life sciences	Innovation potential	Ability to produce novel innovations in the field of life sciences
Expertise	Excellent knowledge and operation skills in one's own specialized field	Expertise	The latest knowledge on the specialized field
English language proficiency	Proficiency in the use of the English language for communicating, understanding , and expressing ideas in life science field	English language proficiency	Ability to communicate using the English language when carry out all research-related activities in international setting

● Achievement Evaluation (AE) & Thesis Defense

AE enables students to **confirm their achievement status** related to knowledge and abilities (generic/specific competences) which must be acquired and **improve their learning plan with their supervisors.**

Ⓜ Master's Program	Ⓓ Doctoral Program
• A year after the enrollment, AE committee composed of the research supervisor and the two assistant-supervisors conducts Achievement Evaluation Ⅰ.	• A year after the enrollment, AE committee composed of the research supervisor and the two assistant-supervisors conducts Achievement Evaluation Ⅰ.
• A year and six months after the enrollment, the chief examiner and the two assistant-examiners conduct a mid-term examination of Master's research progress.	• A year and six months after the enrollment, the chief examiner and the three assistant-examiners conduct a mid-term examination of Doctoral research progress.
• Four months before completion (expected), AE committee composed of the research supervisor and the two assistant-supervisors conducts Achievement Evaluation Ⅱ.	• Two year after the enrollment, AE committee composed of the research supervisor and the two assistant-supervisors conducts Achievement Evaluation Ⅱ.
• Two months before completion (expected), the chief examiner and the two assistant-examiners conduct a final examination based on presentation and defense of the Master's thesis.	• Five months before completion (expected), AE committee composed of the research supervisor and the two assistant-supervisors conducts Achievement Evaluation Ⅲ.
	• Five months before completion (expected), the chief examiner and the three assistant-examiners conduct a preliminary examination of Doctoral dissertation.
	• Three months before completion (expected), the chief examiner and the three assistant-examiners conduct a final examination based on presentation and defense of the dissertation.

Spend quality time on our open-air campus

Campus Life

This section provides an overview of campus life at the University of Tsukuba.

Our Tsukuba campus is located in Tsukuba Science City, which sustains harmony between an academic atmosphere and an abundant natural environment. The 258-hectare university grounds are dotted with forest parks, and one of the features is that there is no main gate. This symbolizes that our university is an open university in all aspects, as declared in our mission statement. A diverse range of students, including international students and working people, study in this environment, enjoying strong support from the university and our degree programs.

Think about what your campus life will be in our university while referring to the following pages including our students' voices.

Campus Life

Residences

● On-campus housing

The University provides single-person and family residences for both Japanese and international students who wish to stay in student halls of residence.

More than 3,000 single rooms and 100 family rooms are located across four areas: Hirasuna, Oikoshi, Ichinoya and Kasuga.

Furthermore, our "Global Village" offering shared accommodation for Japanese and international students opened in 2017.

● Off-campus housing

There are many apartments and condominiums near the campus. When looking for an apartment, visit a real estate agency and tell them what you are seeking in a place to live.

Admission and Tuition Fees

Examination Fee: 30,000 JPY
Admission Fee: 282,000 JPY
Annual Tuition Fee: 535,800 JPY

Note: Upon request, tuition fees may be partially or fully waived for students with excellent academic performance who require financial support.

Financial Supports

1. Scholarships (M) (D)

(A) Japanese Government (MONBUKAGAKUSHO: MEXT) Scholarships

MEXT offers a number of scholarships to overseas stundets who wish to study in Japan. Applicants for the scholarships are made either through Japanese embassies or consulates-general overseas (embassy recommendations) or through a university in Japan (university recommendations).

(B) Scholarships for privately-financed students

Scholarships for privately-financed international students are divided into two types according to the application method: The first type of scholarship requires application through the university, while the second type allows direct application to the scholarship foundation.

2. Admission Fee and Tuition Waiver (M) (D)

Students who require financial support may be partially or fully exempted from payment of admission fees and tuition fees, or may be allowed to delay payment upon request.

3. Teaching Assistant (TA) and Research Assistant (RA) System

TA System (M) (D):

Our degree programs actively employ students as TAs.

This system enables students to receive training to be educators and researchers in the future. Master's program students who became TAs assist with undergraduate program classes, and Doctoral program students assist with classes in Master's programs and undergraduate programs.

RA System (D):

Furthermore, Doctoral Program students can receive training as researchers and gain financial support as RAs.

This system enables young researchers to develop their research abilities, and faculties to develop research support systems for our degree programs.

For more information on international students, please refer to the Enrollment Guidebook: https://www.tsukuba.ac.jp/en/admissions/guidebook-enrollment/

Students' Voices

BAO Xingyu

Master's Program in Service Engineering (completed in 2021)

I enrolled in this program in order to develop my research skills and problem-solving skills.
I am living fulfilling research life by taking advantage of the regional characteristics of the Tsukuba Science City and the concept of Policy and Planning Sciences.
In the past year, I have gained specialized knowledge in smaller-sized classes and even experienced out-of-university-collaboration projects with Kashima Antlers and Teshio Town, Hokkaido.
Master's Program in Service Engineering is a cutting-edge and appealing program where you can be inspired by the people who are leading new generations and develop yourself.

SONG Shengmei

Master's Program in Computer Science (completed in 2021)

I was both excited and nervous when I came to the University of Tsukuba in 2019.
Since the UT is an international-friendly university, I unexpectedly got used to the new life soon.
There are many international students here so that you could get some tips from other international friends around you.
Thanks to my lab mates and my supervior, I found the research field that matchs my interests and started a research on User Interface.
You might be anxious sometimes when you are far from home. However, I believe that studying in the UT really paid off because I enjoy the campus life and Japanese culture.

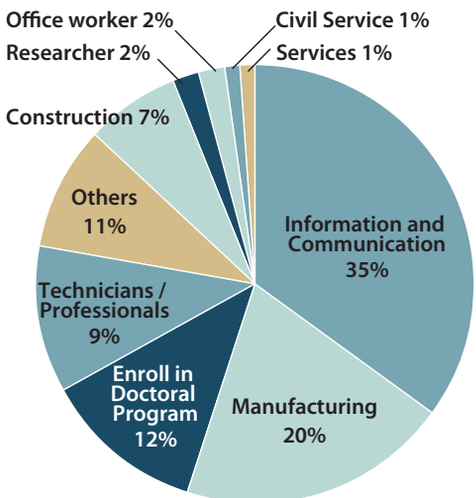
LEE Jieun

Doctoral Program in Risk Engineering (completed in 2020)

I believe that there are some requirements to be a good researcher: problem-solving skills, aspirations, and presentation skills.
Master's/Doctoral Program in Risk Engineering are appealing programs which provide students opportunities to develop these skills.
The main feature of Master's/Doctoral Program in Risk Engineering is that they have four research fields defined as Total Risk Management, Cyber Risk, Urban Risk, and Environment and Energy Risk, and both academic and practical approaches could be applied in all four fields.
In the lectures, we can develop our intellectual abilities while learning the definition of the word "Risk". In the group works and research, on the other hand, we can wider our perspectives while proposing and assesing solutions to risks in the current society.
The portfolio system where students compile their achievements every month and the Achievement Level Asessment System where students report their progress every six months make them reflect on what they have learned. That also could be an opportunity to receive useful advices from professors.
Your experiences in this program encourage you to start your career as a researcher who can solve risks in the society.

Career Paths

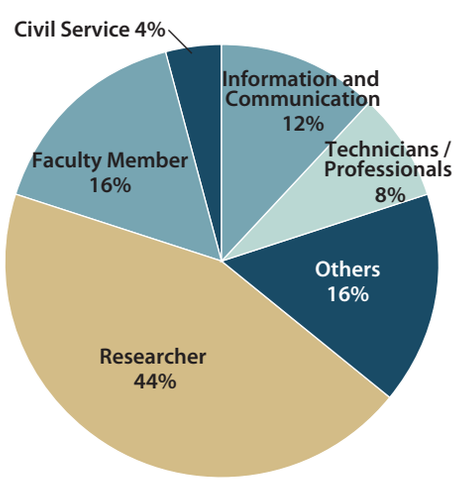
Careers taken by those who completed with master's degrees in 2022



Career after Graduation

CRI Middleware, IHI, KADOKAWA Connected, KDDI, LINE, NEC Solution Innovators, NTT COMWARE, NTT DATA, NTT docomo, NTT EAST, PwC Consulting, Sky, SUBARU, Accenture , kubota, KOEI TECMO, Cyber Agent, cybozu, Simplex, Sony Interactive Entertainment, Sony Group, Sony Semiconductor Solutions, SoftBank, DNA, Mizuho Financial Group, Yahoo Japan, Yamaha Motor, Ebara, Yokogawa Electric, Rakuten Group, CTI Engineering, Ministry of Land, Infrastructure and Transport, Mitsubishi Electric, AIST, Sumitomo Heavy Industries, Sumitomo Electric Industries, Komatsu, SHIMIZU, The Shizuoka Bank, Kawasaki Heavy Industries, Railway Technical Research Institute, Urban Renaissance Agency, TOKYO GAS, Toshiba Digital Solutions, Nissan Moter, NEC, Hitachi, FUJITSU, Nomura Research Institute

Careers taken by those who completed with doctoral degrees in 2022



Career after Graduation

KDDI, LINE, RevComm, Sony Group, INSERM, Heidelberg University, AIST, University of Tsukuba, Tohoku University, Japan Society for the Promotion of Science, Hitachi, Ningbo University, National Agriculture and Food Research Organization, NIED, Zhejiang University of Finance & Economics

Admissions

Outline of Admission Procedures

In order to welcome a diverse range of outstanding students from inside and outside the university, several times each year the Degree Programs in Systems and Information Engineering offer different kinds of entrance examinations as below.

Types of selection process:

1. General Selection Process
2. Special Selection Process for Working Individuals
3. Special Selection for Overseas Residents (Doctoral Programs)

Applicants' qualifications will be assessed through a foreign language exam, a written exam, or an oral exam, or a combination of these. Furthermore, some degree programs require official academic transcripts. For the foreign language exam, applicants must submit official score certificates for either TOEFL, TOEIC or IELTS. Some degree programs and types of selection do not require written exams. Note that applicants must take all exams designated, and will be failed if absent from one of the designated exams.

For the latest information on admission, please refer to the webpages below.

- General Selection Process / Special Selection Process for Working Individuals:
  University of Tsukuba Graduate Admissions
  https://eng.ap-graduate.tsukuba.ac.jp/

- Special Selection for Overseas Residents (Doctoral Programs):
  Degree Programs in Systems and Information Engineering
  https://www.sie.tsukuba.ac.jp/eng/visitor/exam/entra/

Admission Schedules

Master's Programs	• General Selection Process : **August and January-February** • Special Selection Process for Working Individuals : **August and January-February**
Doctoral Programs	• General Selection Process : **August and January-February** • Special Selection Process for Working Individuals: **August and January-February** * • Special Selection for Overseas Residents : **January-February and July**

*For the Doctoral Program in Risk and Resilience Engineering, applicants may take the exam at the Tokyo Campus on a Saturday or Sunday.

筑波大学 University of Tsukuba

Access

●Tsukuba Express (TX)

45 minutes from Akihabara Station to Tsukuba Station by rapid train.
It takes about 10 minutes to “Dai-San Area Mae” from the bus stop No.6 at Tsukuba Center by the bus bound for “Tsukuba Daigaku Chuo” or “Tsukuba Daigaku Junkan (clockwise*)".

●JR Joban Line

It takes about 1 hour to Hitachino-Ushiku Station, Arakawaoki Station or Tsuchiura Station from Ueno Station. Then it takes about 30 to 35 minutes to “Dai-San Area Mae” by the bus bound for “Tsukuba Daigaku Chuo” from either the Hitachino-Ushiku Station East Exit, Arakawaoki Station West Exit, or Tsuchiura Station West Exit. If a non-stop bus is not available, take the bus bound for “Tsukuba Center", get off at Tsukuba Center, take the bus bound for “Tsukuba Daigaku Chuo” or “Tsukuba Daigaku Junkan (clockwise*)", then get off at "Dai San Area Mae".

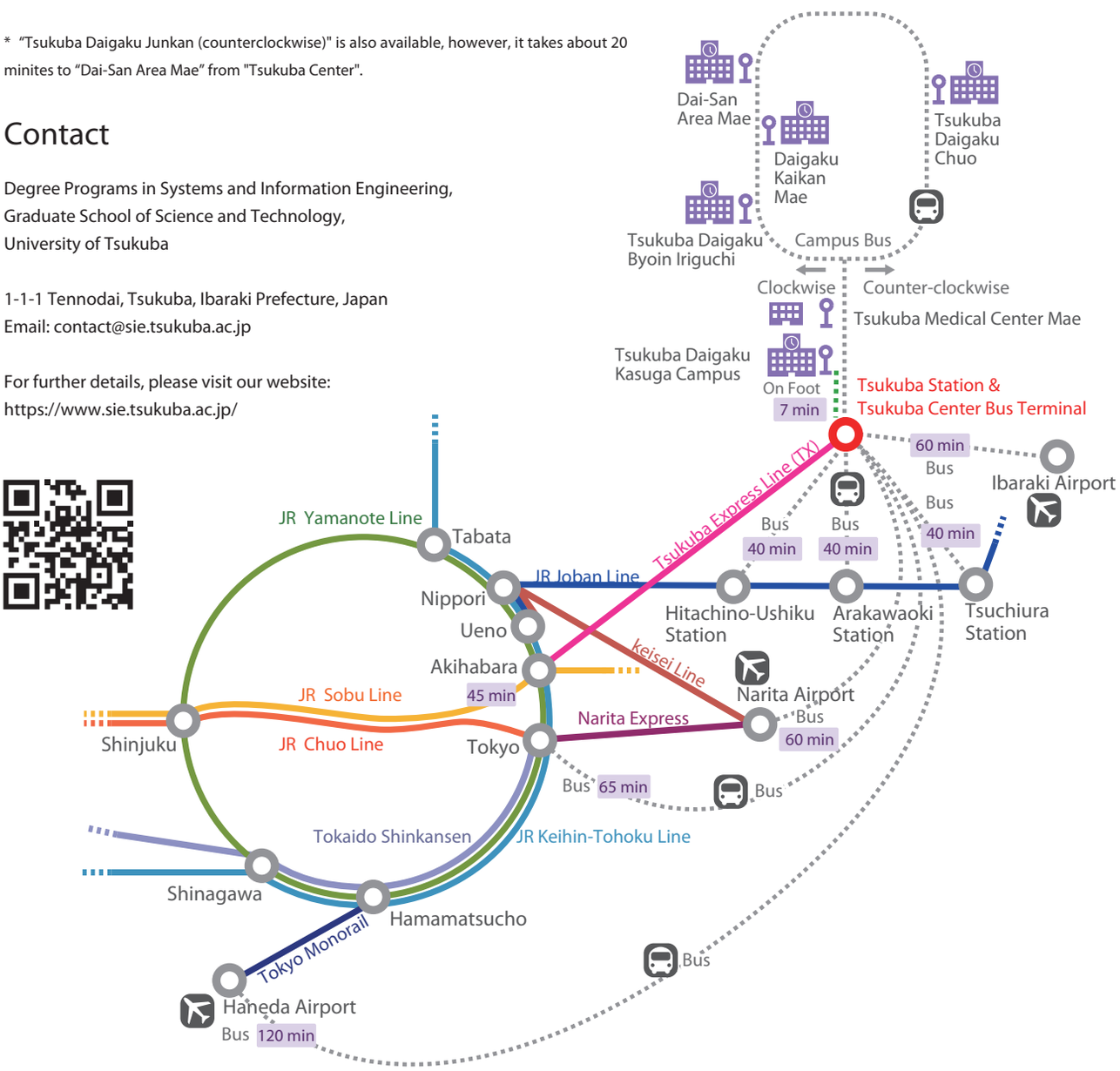
●Highway Express Bus

From the Tokyo Station Yaesu South Exit, take the highway express bus bound for “Tsukuba Daigaku". It takes about 60 minutes. After getting off at "Daigaku Kaikan Mae", it takes about 10 minutes on foot. Or, it takes about 65 minutes by highway express bus bound for "Tsukuba Center". It takes about 10 minutes to “Dai-San Area Mae” from “Tsukuba Center” by bus bound for “Tsukuba Daigaku Chuo” or "Tsukuba Daigaku Junkan (clockwise*)".

* “Tsukuba Daigaku Junkan (counterclockwise)" is also available, however, it takes about 20 minites to “Dai-San Area Mae” from "Tsukuba Center".

Contact

Degree Programs in Systems and Information Engineering,
Graduate School of Science and Technology,
University of Tsukuba

1-1-1 Tennodai, Tsukuba, Ibaraki Prefecture, Japan
Email: contact@sie.tsukuba.ac.jp

For further details, please visit our website:
https://www.sie.tsukuba.ac.jp/